

LIST OF SEQUENCES

(1) GENERAL INFORMATION:

(i) APPLICANT:

(A) NAME: CYANAMID IBERICA, S.A.

(B) ADDRESS: CRISTOBAL BORDIU, 35

(C) CITY: MADRID

(E COUNTRY: SPAIN

(F) POSTAL CODE: 28003

(G TELEPHONE: 34 1 663 91 21

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(ii) TITLE OF THE INVENTION:

VECTORS BASED ON RECOMBINANT DEFECTIVE VIRAL GENOMES AND
THEIR USE IN THE FORMULATION OF VACCINES

(iii) NUMBER OF SEQUENCES: 24

(iv) FORM READABLE BY COMPUTER:

(A) MEDIUM: Diskette

(B) COMPUTER: IBM PC-compatible

(C) OPERATIVE SYSTEM: PC-DOS/MS-DOS

(D) SOFTWARE: PatentIn Release #1.0, Version #1.30 (EPO)

(2) INFORMATION ON IDENTIFIED SEQUENCE No. [ID. SEQ. No.]: 1:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 27 base pairs

(B) TYPE: nucleic acid

(C) NO. OF CHAINS: monocatenary

(D) TOPOLOGY: linear

(ii) TYPE OF MOLECULE: DNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(xi) DESCRIPTION OF THE SEQUENCE: ID. SEQ. No.: 1:

GTGAGTGTAG CGTGGCTATA TCTCTTC

27

(2) INFORMATION ON IDENTIFIED SEQUENCE No.: 2:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 21 base pairs

(B) TYPE: nucleic acid

(C) NO. OF CHAINS: monocatenary

(D) TOPOLOGY: linear

(ii) TYPE OF MOLECULE: DNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(xi) DESCRIPTION OF THE SEQUENCE: ID. SEQ. No.: 2:

CCGTTGTGGT GTCACATTAA C

21

(2) INFORMATION ON IDENTIFIED SEQUENCE No.: 3:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 32 base pairs

(B) TYPE: nucleic acid

(C) NO. OF CHAINS: monocatenary

(D) TOPOLOGY: linear

(ii) TYPE OF MOLECULE: DNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(xi) DESCRIPTION OF THE SEQUENCE: ID. SEQ. No.: 3:

GCCTCTAGAG GAGCTTTGTG GTTCACTTAC AC

32

(2) INFORMATION ON IDENTIFIED SEQUENCE No.: 4:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 32 base pairs

(B) TYPE: nucleic acid

(C) NO. OF CHAINS: monocatenary

(D) TOPOLOGY: linear

(ii) TYPE OF MOLECULE: DNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(xi) DESCRIPTION OF THE SEQUENCE: ID. SEQ. No.: 4:

GCTCTAGAGC GTTTGAATCA ACCCCCAAAA GC

32

(2) INFORMATION ON IDENTIFIED SEQUENCE No.: 5:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 26 base pairs

(B) TYPE: nucleic acid

(C) NO. OF CHAINS: monocatenary

(D) TOPOLOGY: linear

(ii) TYPE OF MOLECULE: DNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(xi) DESCRIPTION OF THE SEQUENCE: ID. SEQ. No.: 5:

GGAATTCCGG GACTATCCTA AGTGTG

26

(2) INFORMATION ON IDENTIFIED SEQUENCE No.: 6:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 25 base pairs

(B) TYPE: nucleic acid

(C) NO. OF CHAINS: monocatenary

(D) TOPOLOGY: linear

(ii) TYPE OF MOLECULE: DNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(xi) DESCRIPTION OF THE SEQUENCE: ID. SEQ. No.: 6:

GGAATTCCAG CAATACTATT ATCAA

25

(2) INFORMATION ON IDENTIFIED SEQUENCE No.: 7:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 base pairs

(B) TYPE: nucleic acid

(C) NO. OF CHAINS: monocatenary

(D) TOPOLOGY: linear

(ii) TYPE OF MOLECULE: DNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(xi) DESCRIPTION OF THE SEQUENCE: ID. SEQ. No.: 7:

TTGATAATAG TATTGCTGGC

20

(2) INFORMATION ON IDENTIFIED SEQUENCE No.: 8:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 23 base pairs

(B) TYPE: nucleic acid

(C) NO. OF CHAINS: monocatenary

(D) TOPOLOGY: linear

(ii) TYPE OF MOLECULE: DNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(xi) DESCRIPTION OF THE SEQUENCE: ID. SEQ. No.: 8:

GGACTAGTAT CACTATCAAA AGG

23

(2) INFORMATION ON IDENTIFIED SEQUENCE No.: 9:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 base pairs

(B) TYPE: nucleic acid

(C) NO. OF CHAINS: monocatenary

(D) TOPOLOGY: linear

(ii) TYPE OF MOLECULE: DNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(xi) DESCRIPTION OF THE SEQUENCE: ID. SEQ. No.: 9:

GATGGATGTT GTGGTGTGAG

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10

- (xi) DESCRIPTION OF THE SEQUENCE: ID. SEQ. No.: 10:
CGAGTTGGTG TCCGAAGACA AAATCT 26

15

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- (xi) DESCRIPTION OF THE SEQUENCE: ID. SEQ. No.: 11:

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(A) LENGTH: 20 base pairs
(B) TYPE: nucleic acid

(C) NO. OF CHAINS: monocatenary

(D) TOPOLOGY: linear

(ii) TYPE OF MOLECULE: DNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(xi) DESCRIPTION OF THE SEQUENCE: ID. SEQ. No.: 12:

AGAGTTGCCA CAGACTGCAG

20

(2) INFORMATION ON IDENTIFIED SEQUENCE No.: 13:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 base pairs

(B) TYPE: nucleic acid

(C) NO. OF CHAINS: monocatenary

(D) TOPOLOGY: linear

(ii) TYPE OF MOLECULE: DNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(xi) DESCRIPTION OF THE SEQUENCE: ID. SEQ. No.: 13:

CAGCAGTTC AAAGTTACCC

20

(2) INFORMATION ON IDENTIFIED SEQUENCE No. 14:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 base pairs

(B) TYPE: nucleic acid

(C) NO. OF CHAINS: monocatenary

(D) TOPOLOGY: linear

(ii) TYPE OF MOLECULE: DNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(xi) DESCRIPTION OF THE SEQUENCE: ID. SEQ. No.: 14:

CCATTGTAA GCCAACAACC

20

2) INFORMATION ON IDENTIFIED SEQUENCE No. 15:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 base pairs

(B) TYPE: nucleic acid

(C) NO. OF CHAINS: monocatenary

(D) TOPOLOGY: linear

(ii) TYPE OF MOLECULE: DNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(xi) DESCRIPTION OF THE SEQUENCE: ID. SEQ. No.: 15 :

ATCACACTTA GGATAGTCCC

20

2) INFORMATION ON IDENTIFIED SEQUENCE No. 16:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 19 base pairs

(B) TYPE: nucleic acid

(C) NO. OF CHAINS: monocatenary

(D) TOPOLOGY: linear

(ii) TYPE OF MOLECULE: DNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(xi) DESCRIPTION OF THE SEQUENCE: ID. SEQ. No.: 16 :

GTCTAACAAT GTGCCAAGG

19

2) INFORMATION ON IDENTIFIED SEQUENCE No. 17:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 base pairs

(B) TYPE: nucleic acid

(C) NO. OF CHAINS: monocatenary

(D) TOPOLOGY: linear

(ii) TYPE OF MOLECULE: DNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(xi) DESCRIPTION OF THE SEQUENCE: ID. SEQ. No.: 17:

GCCAGCAATA CTATTATCAA

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2) INFORMATION ON IDENTIFIED SEQUENCE No. 18:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 base pairs

(B) TYPE: nucleic acid

(C) NO. OF CHAINS: monocatenary

(D) TOPOLOGY: linear

(ii) TYPE OF MOLECULE: DNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(xi) DESCRIPTION OF THE SEQUENCE: ID. SEQ. No.: 18:

CACTGTGGCA CCCTTACCTG

20

2) INFORMATION ON IDENTIFIED SEQUENCE No. 19:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 base pairs

(B) TYPE: nucleic acid

(C) NO. OF CHAINS: monocatenary

(D) TOPOLOGY: linear

(ii) TYPE OF MOLECULE: DNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(xi) DESCRIPTION OF THE SEQUENCE: ID. SEQ. No.: 19:

GTACACCCAC TATGTTGTCT

20

2) INFORMATION ON IDENTIFIED SEQUENCE No. 20:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 base pairs

(B) TYPE: nucleic acid

(C) NO. OF CHAINS: monocatenary

(D) TOPOLOGY: linear

(ii) TYPE OF MOLECULE: DNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(xi) DESCRIPTION OF THE SEQUENCE: ID. SEQ. No.: 20 :

TTGCGAGTGA AAACAAATGT

20

5

2) INFORMATION ON IDENTIFIED SEQUENCE No. 21:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 base pairs

(B) TYPE: nucleic acid

(C) NO. OF CHAINS: monocatenary

(D) TOPOLOGY: linear

(ii) TYPE OF MOLECULE: DNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(xi) DESCRIPTION OF THE SEQUENCE: ID. SEQ. No.: 21:

CTCACAATCA GACGCTGTAC

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2) INFORMATION ON IDENTIFIED SEQUENCE No. 22:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 base pairs

(B) TYPE: nucleic acid

(C) NO. OF CHAINS: monocatenary

(D) TOPOLOGY: linear

(ii) TYPE OF MOLECULE: DNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

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(xi) DESCRIPTION OF THE SEQUENCE: ID. SEQ. No.: 22:
GACACGTTGT CCCTGGTTGG 20

5 2) INFORMATION ON IDENTIFIED SEQUENCE No. 23:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 base pairs

(B) TYPE: nucleic acid

(C) NO. OF CHAINS: monocatenary

10 (D) TOPOLOGY: linear

(ii) TYPE OF MOLECULE: DNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

15 (xi) DESCRIPTION OF THE SEQUENCE: ID. SEQ. No.: 23:
ACATTTTAAA CAATCACTAG 20

2) INFORMATION ON IDENTIFIED SEQUENCE No. 24:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 9714 base pairs

(B) TYPE: nucleic acid

(C) NO. OF CHAINS: bicatenary

(D) TOPOLOGY: circular

(ii) TYPE OF MOLECULE: cDNA

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(vi) ORIGINAL SOURCE:

(A) ORGANISM: Virus of transmissible gastroenteritis of pigs (TGEV)

(B) STRAIN: THER-1

(C) INDIVIDUAL ISOLATE: DI-C

(xi) DESCRIPTION OF THE SEQUENCE: ID. SEQ. No.: 24:

HCTTTTAAAG TAAAGTGAGT GTAGCGTGGC TATATCTCTT CTTTACTTT AACTAGCCTT 60
 GTGCTAGATT TTGTCTTCGG ACACCAACTC GAACTAAACG AAATATTTGT CTTTCTATGA 120
 AATCATAGAG GACAAGCGTT GATTATTTCC ATTCAGTTTG GCAATCACTC CTGGAAACGG 180
 CGTTGAGCGA ACGGTGCACT AGGGTTCCGT CCCTATTTGG TAAGTGGCCT AGTAGTAGCG 240
 AGTGCGGTTC CGCCCGTACA ACCTTGGGTA GACCGGGTTC CGTCTGTGA TCTCCCTCGC 300
 CGGCCGCCAG GAGAATGAGT TCCAACAAT TCAAGATCCT TGTTAATGAG GACTATCAAG 360
 TCAACGTGCC TAGTCTTCCT ATTCGTGACG TGTTACAGGA AATTAAGTAC TGCTACCGTA 420
 ATGGATTGA GGGCTATGTT TTCTGACCAG AATACTGTGC TGACCTAGTT GATTGCGATC 480
 GTAAGGATCA CTACGTCATT GGTGTTCTTG GTAACGGAGT AAGTGATCTT AAACCTGTTT 540
 TTCTTACCGA ACCCTCCGTC ATGTTGCAAG GCTTTATTGT TAGAGCTAAC TGCAATGGCG 600
 TTCTTGAGGA CTTTGACCTT AAAATTGCTC GCACTGTGAG AGGTGCCATA TATGTTGATC 660
 AATACATGTC TGGTGCTGAT GGAATAACAG TCATTGAAGG CGATTTTAAG GACTACTTCG 720
 GTGATGAAGA CATCATTAAG TTTGAAGGAG AGGAGTACCA TTGCGCTTGG ACAACTGTGC 780
 GCGATGAGAA ACCGCTGAAT CAGCAAACTC TCTTTACCAT TCAGGAAATC CAATACAATC 840
 TGGACATTCC TCATAAATTG CCAAAGTGTG CTAAGTAGCA TGTAGCACCA CCAGTCAAAA 900
 AGAACTCTAA AATAGTTCTG TCTGAAGATT ACAAGAAGCT TTATGATATC TTGGGATCAC 960
 CCTTTATGGG AAATGGTGAC TGTCTTAGCA AATGCTTTGA CACTCTTCAT TTTATGCTG 1020
 CTAAGTTAG ATGCCCGTGT GGTCTGAAA GTAGCGCGGT TGGAGATTGG ACTGGTTTTA 1080
 AGACTGCCGT TTGTGCTCTT TCTGCCAAG TTAAGGGTGT CACTTTGGGT GATTTAAGC 1140
 CTGGTGATGC TGTGTCACT AGTATGAGCG CAGGTAAGG AGTTAAGTTC TTTGCCAATT 1200
 GTGTTCTCA ATATGCTGGT GATGTTGAAG GTGTCTCCAT CTGGAAGTT ATTAATACTT 1260
 TTACAGTTGA TGAGACTGTA TGCACCCCTG GTTTTGAAGG CGAATTGAAC GACTTCATCA 1320
 AACCTGAGAG CAATCACTA GTTGCAATCA GCGTTAAAAG AGCATTCAAT ACTGGTGATA 1380
 TTGATGATGC TGTACATGAT TGTATCATT CAGGAAAATT GGATCTTAGT ACCAACCTTT 1440
 TTGGTAATGT TGTCTATTA TTCAAGAAGA CTCCATGGTT TGTACAAAAG TGTGGTGAC 1500
 TTTTGTAGA CGCTTGAAGA GTAGTAGAG AGCTTTGTGG TTCACTCACA CTTACATACA 1560
 AGCAAAATTA TGAAGTTGTA GCATCACTT GCATCTCTGC TTTTACGATT GTAACTACA 1620
 AGCCAACATT TGTGGTTCCA GACAATCGTG TTAAGATCT TGTAGACAAG TGTGTGAAG 1680
 TTCTTGTAAG AGCATTGAT GTTTTACGC AGATTATCAC AATAGCTGGT ATTGAGGCCA 1740
 AATGCTTTGT GCTTGGTGT AAATACCTGT TGTCAATAA TGCATTGTC AAACCTGTCA 1800
 GTGTTAAAT CCTTGGCAAG AAGCAAAAG GTCTTGAATG TGCAATCTTT GCTACTAGCT 1860
 TGGTGGTGC AACTGTTAAT GTGACACCTA AAAGAACAGA GACTGCCACT ATCAGCTTGA 1920
 ACAAGTTGA TGATGTTGTA GCACCAGGAG AGGGTTATAT CGTCATTGTT GGTGATATG 1980
 CTTTCTACAA GAGTGGTGAA TATTATTCA TGATGTCTAG TCCTAATTTT GTTCTTACTA 2040
 ACAATGTTTT TAAAGCAGTT AAAGTTCCAT CTTATGACAT CGTTTATGAT GTTGATAATG 2100

ATACCAAG CAAAATGATT GCAAACTTG GTTCATCATT TGAACAAATA CCACTGGCA 2160
 CACAGATCC AATTCGGTTC TGTATTGAAA ATGAAGTTTG TGTGTCTGT GGTGTGGC 2220
 TTAACATGG TTGCATGTGC GATCGTACTT CTATGCAGAG TTTTACTGTT GATCAAAGTT 2280
 ATTTAAACGA GTGCGGGGTT CTAGTCAGC TCGACTAGAA CCCTGCAATG GTACTGATCC 2340
 AGACCAATGTT AGTAGAGCTT TTGACATCTA CAACAAAGAT GTTGGGTGTA TTGGTAAATT 2400
 CCTTAAGAGC AATTGTTCAA GATTTAGGAA TTTGGACAAA CATGATGCCT ACTACATTGT 2460
 CAAACGTTGT ACAAAGACCG TTATGGACCA TGAGCAAGTC TGTATAACG ATCTTAAAGA 2520
 TTCTGGTCT GTTGTGAGC ATGACTTCTT CACATATAAA GAGGGTAGAT GTGAGTTCCG 2580
 TAATGTTGCA CGTAGGAATC TTACAAAGTA CACAATGATG GATCTTTGTT ACGCTATCAG 2640
 AAATTTTGT GAAAAGAACT GTGAAGTCT CAAAGAAATA CTCTGACAG TAGGTGCTTG 2700
 CACTGAAGAA TTCTTTGAAA ATAAAGATTG GTTTGATCCA GTTGAATG AAGCCATACA 2760
 TGAAGTTTAT GCAAACTTG GACCCATTGT AGCCAATGCT ATGCTTAAAT GTGTTGCTTT 2820
 TTGGATGCG ATAGTGAAA AAGGCTATAT AGGTGTTATA ACACTGACA ACCAAGATCT 2880
 TAATGCCAAT TTCTACGATT TCGGCGATT CGTGAAGACT GCTCCGGTT TTGGTGGC 2940
 TTGTGTTACA TCATATTATT CITATATGAT GCCTTAAATG GGGATGACTT CATGCTTAGA 3000
 GTCTGAAAC TTGTGAAA GTGACATCTA TGGTCTGAT TATAAGCAGT ATGATTTACT 3060
 AGCTTATGAT TTACCGAAC ATAAGGACTA CCTTTCCAA AAATACTTA AGTACTGGA 3120
 TCGCACATAT CACCAAATT GTTCTGATG TACTAGTGA GAGTGATTA TTCTTGTG 3180
 TAATTTAAC ACATGTTTT CTATCAAT ACCAATGACA GCCTTGGAC CACTGTCCG 3240
 TAAAGTTTAT ATGATGGTG TACCAGTGT TGTACTGCA GGTACCAT TCAACAACT 3300
 TGGTATAGTA TGAATCTTG ATGAAAAT AGACAAATG AAGTTGAGCA TGAATGATCT 3360
 TCTTAGATT GTACAGATC CAACCTTCT TGTAGCATCA AGCCCTGCAC TTTTAGACCA 3420
 GCGTACTGTC TGTTCCTCA TTGCAGCTTT GAGTACTGGT ATTACATATC AGACAGTAA 3480
 ACCAGGTCAC TTAACAAGG ATTTCTACGA TTTCATAACA GAGCGTGGAT TCTTTGAAGA 3540
 GGGATCTGAG TTAACATTAA AACATTTTT CTTGCACAG GGTGGTGAAG CTGCTATGAC 3600
 AGACTTCAAT TATTATCGCT ACAATAGAGT CACAGTACTT GATATTTGCC AAGCTCAAT 3660
 TGTTTACAAA ATAGTTGGCA AGTATTTGA ATGTATGAC GGTGGGTGCA TTAATGCTCG 3720
 TGAAGTTGTT GTTACAACT ATGACAAGAG TGCTGGCTAT CCTTGAACA AATTGGTAA 3780
 AGCTAGACTT TACTACGAAA CTCTTCATA TGAAGAGCAG GATGCACITT TTGCTTTAAC 3840
 AAAGAGAAAT GTTTACCCA CAATGACTCA AATGAATTTG AAATACGCTA TTTCTGGTAA 3900
 GGCAAGAGCT CGTACAGTAG GAGGAGTTT ACTTCTTCT ACCATGACTA CGAGACAATA 3960
 TCATCAGAAG CATTTGAAGT CAATTGCTGC AACACGCAAT GCTACTGTGG TCATTGGTTC 4020
 AACCAAGTTT TATGGTGGT GGGACAATAT GCTTAAAAAT TTAATGCGTG ATGTTGATA 4080
 TGGTTGTTG ATGGGATGGG ACTATCCTAA GTGTGACCGT GCTTTACCTA ATATGATTAG 4140
 AATGGCTTCT GCCATGATAT TAGGTTCTAA GCATGTTGGT TGTGTACAC ATAATGATAG 4200

TTCTACCGC CTCTCCAATG AGTTAGCTCA AGTACTCACA GAAGTTGTGC ATTGCACAGG 4260
 TGGTTTTAT TTTAAACCTG GTGGTACAAC TAGCGGTGAT GGTACTACAG CATATGCTAA 4320
 CTCTGCTTTT AACTCTTTC AAGCTGTTTC TGCTAATGTT AATAAGCTTT TGGGGGTTGA 4380
 TTCAAACGCT TGTAAACAAG TTACAGTAAA ATCCATACAA CGTAAATTT ACGATAATTG 4440
 TTATCGTAGT AGCAGCATTG ATGAAGAATT TGTGTTGAG TACTTTAGTT ATTTGAGAAA 4500
 ACACTTTTCT ATGATGATTT TATCTGATGA TGGAGTTGTG TGCTACAACA AAGATTATGC 4560
 GGATTIAGGT TATGTAGCTG ACATTAATGC TTTTAAAGCA ACACTTTATT ACCAGAATAA 4620
 CGTCTTTATG TCCACTTCTA AGTGTGGGT AGAACCAGAT CTTAGTGTG GACCACATGA 4680
 AITTTGTICA CACCATACAT TGCAGATTGT TGGGCTGAT GGAGACTACT ATCTTCCCTA 4740
 TCCAGACCG TCCAGAAATT TGTACGCTGG TGTGTTTGTG GATGACATAG TTAAACAGA 4800
 CAATGTTATT ATGTAGAAC GTTACGTGTC ATTGGCTATT GACGCATACC CGCTCACAAA 4860
 ACACCCTAAG CCGCTTATC AAAAAGTGT TTACTCTTA CTAGATTGGG TTAAACATCT 4920
 ACAGAAAAAT TTGAATGCAG GTGTCTTGA TTCGTTTCA GTGACAATGT TAGAGGAAGG 4980
 TCAAGATAAG TTCTGGAGTG AAGAGTTTGA CGCTAGCCTC TATGAAAAGT CCACTGTCTT 5040
 GCAAGCTGCA GGCATGTGTG TAGTATGTGG TTCGAAACT GTACTTCGTT GTGGAGACTG 5100
 ICTTAGGAGA CCACTTTAT GCACGAAATG TGCTTACGAC CATGTTATGG GAACAAAGCA 5160
 TAAATTCATT ATGTCTATCA CACCATATGT GTGTAGTTT AATGGTTGTA ATGTCAATGA 5220
 TGTACAAAG TTGTTTTAG TGGTCTTAG TTATTATTGT ATGAACCACA AACCACAGTT 5280
 GTCATTCCA CTCTGTGCTA ATGGCAAGT TTTTGGTCTA TATAAAAGTA GTGCAGTCGG 5340
 CTCAGAGGCT GTTGAAGATT TCAACAACT TGCAGTTCT GACTGGACTA ATGTAGAAGA 5400
 TACAAACTT GCTAACAATG TCAAGGAATC TCTGAAAATT TTCGCTGCTG AAATGTGAA 5460
 AGCTAAGGAG GAGTCTGTTA AATCTGAATA TGCTTATGCT GTATTAAAGG AGGTTATCGG 5520
 CCCTAAGGAA ATGTACTCC AATGGGAAGC TTCTAAGACT AAGCCTCCAC TTAACAGAAA 5580
 TTCAGTTTC ACGTGTTC AGATAAGTAA GGATACTAAA ATTCAATTAG GTGAATTTGT 5640
 GTTGAGCAA TCTGAGTACG GTAGTGATTC TGTATTATC AAGAGCAGCA GTACTTACAA 5700
 ATGACACCA GGTATGATTT TTGTGTTGAC TTCTCATAAT GTGAGTCCTC TTAAGCTCC 5760
 AATTTTAGTC AACCAAGAAA AGTCAATAC CATATCTAAG CTCTATCCTG TCTTTAATAT 5820
 AGCGGAGGCC TATAATACAC TGGTCCCTTA CTACCAATG ATAGGTAAGC AAAAATTTAC 5880
 AACTATCCA GGTCTCCTG GTAGCGGTAA ATCTCATTGT GTTATAGGTT TGGGTTTGT 5940
 TTACCCTCAG GCGAGAATAG TCTACACTGC ATGTTCTCAT GCGGCTGTAG ACGCTTTATG 6000
 TGA AAAAGCA GCCAAAACT TCAATGTTGA TAGATGTTCA AGGATAATAC CTCAAAGAAT 6060
 CAGAGTTGAT TGTACACAG GCTTTAAGCC TAATAACACC AATGCGCAGT ACTTGTTTTG 6120
 TACTGTTAAT GCTCTACCAG AAGCAAGTTG TGACATTGTT GTAGTTGATG AGGTCTCTAT 6180
 GTGTACTAAT TATGATCTTA GTGCTATAA TAGCCGACTG AGTTACAAAC ATATTGTTTA 6240
 TGTGGAGAC CACAGCAGC TACCAGCTCC TAGAACTTTG ATTAATAAGG GTGTACTTCA 6300

ACCGCGGGT TACATGTTG TAACCAAAAG AATGTGCACA CTAGGACCTG ATGTCTTTT 6360
 GCTTAAAGT TACAGGTGCC CAGCTGAAT TGTAAACA GTCTCTGCAC TTGTTTATCA 6420
 AATATTTT GTACCTGTCA ACCCAGAATC AAGCAGTGC TTCAAAATGT TTGTAAAGG 6480
 TCAGATTCG ATTGAGTCTA ACTCTTCTAT AACACACAG CAACTAGAGG TTGTCAAGGC 6540
 CTTTTAGCA CATAATCCAA AATGGCGTAA AGCTGTTTT ATCTCACCTT ATAATAGTCA 6600
 AATTTTGT TCTCGGCGTC TTCTTGGTTT GCAAACGCAA ACTGTGGATT CCGCTCAGG 6660
 TAGTGAGTAT GATTACGTCA TCTAGCTGCT CTGAAGATT TTAATCCTGC TGAATTCAC 6720
 GATGTGGGT ATCCAAAAG CATCCGTTGT GCTACAACAC CAATACCATG GTTTTGTAT 6780
 GATCTGATC CTATTAATAA CAATGTTAGA TGTCTGGATT ATGACTATAT GGTACATGT 6840
 CAATGATG GTCTTATGT ATTTTGGAACT TGTAATGTAG ACATGTACCC AGAGTTTTCA 6900
 ATTGTTTGA GATTGATAC TCGCACTGCT TCTAAATTGT CTTTGAAGG TTGTAATGGT 6960
 GGTGCATTGT ATGTTAATAA CCATGCTTTC CACACACCAG CTTATGATAG AAGAGCTTTT 7020
 GCTAAGCTTA AACCTATGCC ATTCTTTTAC TATGATGATA GTAATTGTGA ACTGTGTGAT 7080
 GGGCAACCTA ATTATGTACC ACTTAAGTCA AATGTTTGA TAACAAAATG CAACATTGGT 7140
 GGTGCTGTCT GCAAGAAGCA TGCTGCTCTT TACAGAGCGT ATGTTGAGGA TTACAACATT 7200
 TTTATGCAAG CTGTTTTTAC AATATGGTGT CCTCAAAACT TTGACACCTA TATGCTTTGG 7260
 CATGTTTTG TTAATAGCAA AGCACTTCAG AGTCTAGAAA ATGTGGCTTT TAATGTGCTT 7320
 AAGAAAGTG CCTTCACCGG TTTAAAGGT GACTTACCAA CTGCTGTTAT TGCTGACAAA 7380
 ATAATGGTAA GAGATGGACC TACTGACAAA TGTATTTTTA CAAATAAGAC TAGTTTACCT 7440
 ACAAATGTAG CTTTGTAGTT ATATGCAAAA CGCAAACTTG GACTCACACC TCCATTAACT 7500
 ATACTTAGGA ATTTAGGTGT TGTCGCAACA TATAAGTTTG TGTGTGGGA TTATGAAGCT 7560
 GAACGTCCTT TCTCAATTT CACTAAGCAA GTGTGTTCTT ACACGTATCT TGATAGTGA 7620
 GTTGTAACAT GTTTGATAA TAGTATTGCT GGCTCTTTG AGCGTTTTAC TACTACAAGA 7680
 GATGCAGTC TTAATTTCTAA TAACGCTGTG AAAGGGCTTA GTGCCATTAA ATTACAATAT 7740
 GGCCTTTTGA ATGATCTACC TGTAAGTACT GTTGAAATA AACCTGTAC ATGGTATATC 7800
 TATGTCCGA AGAATGGTGA GTACGTCGAA CAAATCGATA GTTACTATAC ACAGGGACCT 7860
 ACTTTGAAA CCTTCAAACC TCGTAGTACA ATGGAAGAAG ATTTTCTTAG TATGGATACT 7920
 AACTCTTCA TCCAAAAGTA TGGTCTTGAG GATTATGGTT TTGAACAGT TGTATTTGA 7980
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